

REMARKS

Applicants appreciate the statement that the Terminal Disclaimer has been received and approved, and the present Amendment to the title is made as requested.

Applicants understand that the method claims, and at least claims 1, 21, 23 and 26, are rejected under 35 U.S.C. §112, second paragraph. Applicants have, it is believed, obviated this rejection by the amendments which replace "including" with "namely" in each of these independent claims.

Claims 1-30 are rejected under 35 U.S.C. §103 from Bonaventura et al "Refrigeration of Blood Oranges Destined for Transformation" in view of *Citrus Industry*, June 99, and Pao et al, "Formulation of Sensory Evaluation of Fresh-Squeezed, Unpasteurized Juice Blends".

Bonaventura reports upon storage experiments for blood oranges. The principle variant in these tests was the storage temperature. In essence, Bonaventura reports that, if one follows blood orange production in Sicily, the shelf life of extracted juices can be extended by refrigeration temperatures bordering upon freezing temperatures. This article specifically teaches that these juices are "neither pasteurized nor frozen, but simply refrigerated." These experiments were not in the context of commercial juice production in the U.S., which

requires pasteurization to address detrimental and potentially dangerous bacterial growth. Applicants' claims are amended to more particularly define what is disclosed in the description, namely that the invention relates to commercial production of orange juice, including pasteurization and handling on a commercial scale. Other changes to the independent claims are made in order to have the claims read more fluently and more in accordance with processing realities.

In addition, applicants enclose a Declaration of Thomas Taggart. This Declaration emphasizes that when one is apprized of information concerning unpasteurized juices or fresh fruits, that information does not consistently hold when that same originating material is subjected to commercial production conditions. The Declaration also attests to a fact that is well known in the art of U.S. juice production, namely that pasteurization is a requirement of commercial juice production. Without pasteurization, bacterial or other microbial activity is unacceptable.

With more particular reference to the Taggart Declaration, the information thereof regarding blood oranges is particularly instructive with respect to the teachings of Bonaventura. Blood oranges and fresh blood orange juice compared favorably with other cultivars notes in the Declaration. This

was based upon informal tasting and upon an exceptional color value and good chemical properties. However, when pasteurized blood orange juice was tasted and evaluated through gas chromatograph profiles, pronounced off-flavors were evident. Accordingly, in general, the very type of orange category, namely blood oranges (including Tarocco), which are exclusively the subject of Bonaventura were found to be unsuitable for use in commercially produced orange juice, at least from the perspective of sensory requirements.

Returning to Bonaventura, this describes processing, packaging and storage methods to improve shelf life and sensory quality of fresh-squeezed, unpasteurized blends of blood orange cultivars. Reported blends of "Tarocco", "Moro" and "Sanguinello" blood orange juices were combinations of fresh-from-the-tree blood orange juice and juice from third quality blood oranges from whole fruit packing houses. In at least two locations, the article states that these were designed for "respecting" the "productive situation" in Sicily. For example, the third column on page 284, when discussing this following of the situation in Sicily referred to "respecting ... the different stages of ripeness and the availability of oranges during the season."

Applicants respectfully observe that Bonaventura reports upon test blends of blood orange cultivars which were prepared according to standard seasonal availability and were not created to specifically enhance sensory properties or juice chemistry of the final blend. The juice blends of Bonaventura were not created to enhance the length of the Sicilian juice processing season. There is no specific teaching regarding different sensory characteristics of blood orange cultivars when the harvest of these cultivars was made early or late in the season or in the middle of the season. Clearly, Bonaventura does not teach blending a mid-season orange juice of a Vernia cultivar and/or a Frost cultivar with another orange juice source which is neither a Vernia nor a Frost cultivar.

Bonaventura does not teach that a Vernia cultivar and/or a Frost cultivar is an excellent mid-season orange juice source. Bonaventura does not teach that the blood oranges which are discussed in Bonaventura are an excellent source of mid-season orange juice. In fact, the Taggart Declaration supports a conclusion that blood oranges do not fall within this category.

The observations in the preceding paragraph are solidified when one considers that the present invention relates to commercially produced orange juice. Without pasteurization, commercial juice production is impossible because of the

substantial microbial and bacterial issues which arise in connection with natural food sources. Bonaventura explicitly teaches against a blood orange juice product which is pasteurized. Perhaps this is cultural. Perhaps this is an implied recognition that microbial growth in blood oranges should be addressed by near-freezing temperatures, rather than by pasteurization.

In various passages of the originally filed description, applicants specify that their invention is within the context of large-scale commercial production orange juice so as to maintain its standard of identity, that the juices are of the type filled into cartons for distribution to consumers, and that the cartoned product meets consumer and industry standards for Not From Concentrate orange juice. See, for example, the bottom of page 6, about line 15 of page 7, about line 30 of page 18, the top of page 19, about line 25 of page 19, about line 23 of page 20, and about line 12 of page 21.

Applicants respectfully observe that Bonaventura has substantial deficiencies and does not suggest orange juice blends of Vernia and/or Frost cultivars having special mid-season advantages with other types of orange juices sources which do not possess such mid-season advantages. In addition, Bonaventura teaches away from the type of pasteurized commercial production

of the present invention. Neither of the secondary references remove these deficiencies.

Regarding the *Citrus Industry* article, the Office states that sensory data gathering is known. Applicants do not dispute this observation. The *Citrus Industry* article mentions Vernia, which is one of the cultivars which applicants recognize are mid-season cultivars as claimed. This article recognizes the Vernia cultivar as being another Valencia variety. The art knows well that Valencia varieties are late-season cultivars. The *Citrus Industry* article itself recognizes this. Table 6 on page 28 teaches that Hughes Valencia cultivar and Vernia cultivar are harvested at the same time, namely on 14 March 1996 and on 7 April 1997. During these late season harvests, these cultivars had good qualities, including color number and Brix-to-acid ratio. The reported data show good late-season attributes.

Column 2 on the same page recognizes that the Brix-to-acid ratio can reach 13 in February for this Vernia cultivar. Applicants' data and claims such as claim 2, reference harvesting during the months of December to February in the northern hemisphere. The Office points to inherent characteristics of oranges in terms of when they ripen. However, with respect to the Vernia cultivar of the *Citrus Industry* article, the teaching

is not with respect to mid-season characteristics as applicants claim.

When viewed as a whole, the information on page 26 of *Citrus Industry* would indicate that the Vernia SC cultivar should be harvested from not earlier than an unspecified time in February to April 7 or later.

Applicants claim, despite these teachings, an invention wherein cultivars such as Vernia cultivars fill in a previously problematic gap between early season cultivars and late season cultivars such as the Valencias. This is illustrated graphically in Fig. 1 of applicants' specification. As noted in the discussion of this drawing in Example 1 on pages 22 and 23, these data show that peak overall quality scores occurred between early December and early February. Within this mid-season time frame, the Vernia outperformed both the early/mid-cultivars (Hamlin) and the late season cultivars (Valencia). This is recited, for example, in claim 6. This gap-filling advantage of Vernia cultivars for use in blended natural juice products is neither taught nor suggested by the *Citrus Industry* article.

Data in Example 6 of applicants' description provide more specific information. Contrary to the suggestion to one of ordinary skill in the art which is provided in the *Citrus Industry* article that Vernia SC "can reach 13 ratio in February",

applicants' invention is contrary to that suggestion. As indicated in that Example and in Fig. 5B, Vernia have BAR ratio values approaching a 13 ratio in mid December and above a 13 ratio in early-to-mid January. Not to be lost in these data is the fact that such BAR ratios are far more favorable than those of other Valencia cultivars such as the Hughes and the Rhode Red.

Similar observations are apparent from the data in Example 7 and the plot in Fig. 6B. Both the Vernia and Frost cultivars were solidly at or above 13 by January 8, whereas the Hughes and Rhode Red were still less than 10 at that time and did not achieve a 13 level until well into March.

Data such as these show that Vernia and Frost provide mid-season properties far superior to others. Data in the application support this, and none of the references of record, including the *Citrus Industry* article, have these mid-season characteristics and advantageous properties.

In summary, the *Citrus Industry* article does not teach that Vernia SC, or any other cultivar, can be harvested as a mid-season round orange cultivar as applicants describe and claim. Nor do they suggest the gap-filling characteristic illustrated in Fig. 1. The mid-season concept is defined in applicants' claims as having its peak properties after Hamlin orange fruit and before Hughes Valencia and Rhode Red Valencia orange fruit. This

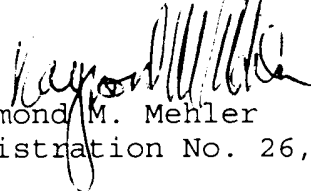


is neither taught nor suggested by any of the references of record.

Although the Pao et al article is noted generally in the Office Action, it is not specifically discussed. Applicants observe that Pao relates to a study to improve sensory and chemistry qualities of early season Hamlin orange juice and Marsh grapefruit juice. There is no suggestion of a gap-filling orange cultivars for a time period after the early season time frame of this article. Additionally, reminiscent of Bonaventura, this relates to juices marketed as fresh-squeezed, unpasteurized juice products.

Reconsideration and withdrawal of the \$103 rejection are respectfully requested. Applicants have made an earnest endeavor to place this application into condition for allowance. Favorable consideration is respectfully requested.

Respectfully submitted,

  
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VERSION WITH MARKINGS TO SHOW CHANGES MADE

--1. (Amended) A method of [preparing] commercially producing an orange juice product, comprising [the steps of]:

harvesting a mid-season round orange cultivar selected from the group consisting of a Vernia cultivar, a Frost cultivar, or a combination of these mid-season cultivars, said harvesting [step] providing said mid-season orange cultivar which has its peak properties during a time period after the peak harvesting season for early-to-mid season round orange fruit, [including] namely Hamlin orange fruit, and before the peak harvesting season for late season round orange fruit [including] , namely Hughes Valencia and Rhode Red Valencia orange fruit, each peak harvesting season being within the growing territory of the mid-season cultivar [harvesting step];

extracting juice from a volume of said mid-season round oranges [of said harvesting step];

pasteurizing and collecting the resulting extracted orange juice as a mid-season orange juice having a Brix-to-acid ratio (BAR) during said harvesting [step] which is greater than that of either said early-to-mid season round orange fruit or said late season round orange fruit harvested within the time period of said harvesting [step]; and

blending, on a commercial scale, said collected mid-season orange juice with another orange juice source in order to provide a juice composition having a greater BAR value than and sensory qualities equivalent or superior to the sensory qualities of orange juice from either said early-to-mid season round orange fruit [juice] or said late season orange fruit harvested during said harvesting season.--

--21. (Twice Amended) A method of [preparing]  
commercially producing an orange juice product, comprising [the  
steps of]:

harvesting a mid-season round orange cultivar  
selected from the group consisting of a Vernia  
cultivar, a Frost cultivar, or a combination of these  
mid-season cultivars, said harvesting [step] providing  
said mid-season orange cultivar which has its peak  
properties during a time period after the peak  
harvesting season for early-to-mid season round orange  
fruit, [including] namely Hamlin orange fruit, and  
before the peak harvesting season for late season round  
orange fruit [including] , namely Hughes Valencia and  
Rhode Red Valencia orange fruit, each peak harvesting  
season being within the growing territory of the  
[harvesting step] mid-season cultivar;

extracting juice from a volume of said mid-season  
round oranges [of said harvesting step];

pasteurizing and collecting the resulting  
extracted orange juice as a mid-season orange juice  
having a Brix-to-acid ratio (BAR) during said  
harvesting [step] which is greater than that of either  
said early-to-mid season round orange fruit or said  
late season round orange fruit harvested within the  
time period of said harvesting of the mid-season  
cultivar [step];

blending, on a commercial scale, said collected  
mid-season orange juice with another orange juice  
source in order to provide a juice composition having a  
greater BAR value than and sensory qualities equivalent  
or superior to the sensory qualities of orange juice  
from either said early-to-mid season round orange fruit

juice or said late season orange fruit harvested during said harvesting season;

said collecting provides an orange juice source having a Color Number of at least 36 CN units; and

said blending blends at least about 5 volume percent, based on the volume of the orange juice, of said mid-season juice [from the extracting step] with said another orange juice source in order to provide an orange juice product having a Color Number in excess of 36 CN units.--

--23. (Twice Amended) A method of [preparing] commercially producing an orange juice product, comprising [the steps of]:

harvesting Vernia cultivar[s] round oranges which have their peak properties during a time period after the peak harvesting season for early-to-mid season round orange fruit, [including] namely Hamlin orange fruit, and before the peak harvesting season for late season round orange fruit [including] , namely Hughes Valencia and Rhode Red Valencia orange fruit, each peak harvesting season being within the growing territory of the Vernia oranges [harvesting step];

extracting juice from a volume of said Vernia round oranges [of said harvesting step];

pasteurizing and collecting the resulting extracted orange juice as a mid-season orange juice having a Brix-to-acid ratio (BAR) during said harvesting [step] which is greater than that of either

said early-to-mid season round orange fruit or said late season round orange fruit harvested within the time period of said harvesting [step] of the Vernia oranges; and

blending, on a commercial scale, said collected mid-season orange juice with another orange juice source in order to provide a juice composition having a greater BAR value than and sensory qualities equivalent or superior to the sensory qualities of orange juice from either said early-to-mid season round orange fruit [juice] or said late season orange fruit harvested during said harvesting season.--

--26. (Twice Amended) A method of [preparing] commercially producing an orange juice product, comprising [the steps of]:

harvesting Vernia cultivar[s] round oranges round oranges which have their peak properties during a time period after the peak harvesting season for early-to-mid season round orange fruit, [including] namely Hamlin orange fruit, and before the peak harvesting season for late season round orange fruit [including] , namely Hughes Valencia and Rhode Red Valencia orange fruit, each peak harvesting season being within the growing territory of the [harvesting step] Vernia orange;

extracting juice from a volume of said Vernia round oranges [of said harvesting step];

pasteurizing and collecting the resulting extracted orange juice as a mid-season orange juice having a Brix-to-acid ratio (BAR) during said harvesting [step] which is greater than that of either said early-to-mid season round orange fruit or said

late season round orange fruit harvested within the time period of said harvesting [step] of the Vernia oranges;

blending, on a commercial scale, said collected mid-season orange juice with another orange juice source in order to provide a juice composition having a greater BAR value than and sensory qualities equivalent or superior to the sensory qualities of orange juice from either said early-to-mid season round orange fruit [juice] or said late season orange fruit harvested during said harvesting season;

said collecting provides an orange juice source having a Color Number of at least 36 CN units; and

said blending blends at least about 5 volume percent, based on the volume of the orange juice, of said Vernia juice [from the extracting step] with said another orange juice source in order to provide an orange juice product having a Color Number in excess of 36 CN units.--

--28. (Amended) An orange juice composition comprising a blend of:

up to about 99 volume percent of a pasteurized mid-season orange juice supply, based upon the total volume of the composition, said mid-season juice having been pasteurized on a commercial scale and having a sensory profile equivalent or superior to that of 100 percent Hughes Valencia or Rhode Red Valencia orange juice from fruit harvested at about the same time as fruit from which said pasteurized mid-season juice originates;

at least about 1 percent by volume of [an] a pasteurized orange juice supply other than said mid-season orange juice supply, based upon the total volume of the composition; and

said fruit from which the mid-season fresh orange juice originates is a round orange cultivar selected from Vernia cultivars, Frost cultivars, or a combination of these mid-season cultivars.--